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THE PARALLAXES OF THREE LONG-PERIOD VARIABLES

In the April number of this Journal parallaxes were communicated for T *Cassiopeiae* and R *Trianguli;* since then parallaxes have been determined for three other long-period variables, viz.:

R Virginis........................π rel. $= +0''.010 \quad \pm 0''.004$
R Can. Ven..................... " $= -0 \ .010 \quad \pm 0 \ .002$
X Ophiuchi..................... " $= \ 0 \ .000 \quad \pm 0 \ .007$

Including *o Ceti* we now have parallaxes for six stars of this type. The absolute magnitude has been computed according to three different formulae[1] on the assumption that it is the same for all six stars; the mean result is

$$\overline{M} \text{ maximum } = +1.7$$
$$\overline{M} \text{ minimum } = +6.7$$

These values are based on the apparent magnitudes given in *Harvard Annals*, **57**, 202, supplemented by data kindly furnished by Mr. Leon Campbell. By using these same magnitudes, Gyllenberg's[2] value for the mean absolute magnitude of 40 objects of this class, based on proper motions, reduces from $\overline{M}$ maximum $= -0.6$ to $+0.2$. The agreement is as good as might be expected from material which in both cases is only too scanty.

A. VAN MAANEN.

A FAINT STAR WITH LARGE PROPER MOTION

Two plates of the region of Lalande 32324 = Burnham's G.C. 8099, taken in 1921, were compared with two plates taken in 1916; they revealed a star 4'.0 east, and 11'.6 south of Lalande 32324, showing a considerable proper motion. The position for 1900.0 is

$$a = 17^h 34^m 30^s; \quad \delta = +61°45'$$

The photographic magnitude as derived from star-counts and Table IV of *Publications of the Astronomical Laboratory at Groningen*, No. 27, is 11.8.

The proper motion, measured by Gingrich, is

$$\mu a = +0''.235; \quad \mu \delta = -0''.525$$
or $$\mu = 0''.575 \text{ in } p = 155°53'$$

[1] *Physica*, **1**, 197-199, 1921.
[2] *Arkiv for Mat., Astr., och Fysik*, **14**, No. 5, 1918.

This motion is practically the same as that of Lalande 32324. The weighted corrected mean of 5 values of the parallax of Lalande 32324 is $\pi = +0''.076$. Supposing that the stars have the same parallax, the faint star has an absolute magnitude of $+11.2$, and a velocity at right angles to the line of sight of 36 km. per second, while its distance from Lalande 32324 is about 10,000 astronomical units.

A. VAN MAANEN AND C. H. GINGRICH.

SUMMARY OF MOUNT WILSON MAGNETIC OBSERVATIONS OF SUN-SPOTS FOR SEPTEMBER AND OCTOBER, 1921

The number of spotless days per month has remained about the same since August. The spots have been distributed in such a way that one hemisphere has been very quiescent, and as each solar rotation brings this face toward the Earth several days pass without spots, once each month, since the Sun's synodic period is nearly equal to a month. August 5, 6, 7, 8, 10; September 4, 5, 6, 8; and October 2, 3, 4, 5 were spotless, and now the first week of November has also been without spots. The average number of groups observed daily was 1.8 during both September and October.

The largest single spot of the past two months was No. 1903 which crossed the central meridian on September 18. The largest group was the bipolar group No. 1915 which was exactly central on the solar disk on October 27.

The most interesting group magnetically was No. 1902. This group was a distinct exception to the regular polarity distribution. Its low latitude of $12°$, however, undoubtedly places it in the present cycle, so that it must be considered as one of the few exceptional cases, with no bearing on the question of polarities in the next cycle. In each hundred groups there are about three exceptions which usually are more unstable and of shorter life than spots of normal polarity.